Table of Contents

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control

Bureau of Air Quality

James A. Joy, III, P.E.
Bureau Chief

William G. Galardi
Assistant Bureau Chief

Patrick T. Walker
Assistant Bureau Chief

Carl W. Richardson, P.E.
Director
Engineering Services

Richard D. Sharpe
Director
Air Compliance Management

John E. Hursey
Director
Emissions, Modeling, and Support

Renee G. Shealy
Director
Air Planning, Development, and Outreach

Introduction ... A message from James A. Joy, III, Air Quality Bureau Chief

The air quality in South Carolina has a direct effect on the citizens of the state and the environment in which we live. Planning and cooperation between government agencies, industry, environmental groups, and the public have allowed for the current success of the South Carolina Air Quality Program.

This report is divided into sections representing the services provided by the Department of Health and Environmental Control (DHEC) Air Quality Program. Services are delivered through collaborative efforts of the central office, district, and air laboratory personnel. Furthermore, the report summarizes the successes achieved through the efforts of partnerships extending beyond the Bureau such as the Small Business Assistance Program (SBAP), the DHEC Center for Waste Minimization, the Department of Commerce, the Department of Transportation, and the general public.

We hope that the material provided in this document will prove informative and serve to generate interest in participation in activities intended to protect and improve the air quality in South Carolina.

Sincerely,

James A. Joy III, P.E.
Chief
Bureau of Air Quality

Bureau of Air Quality

Mission Statement

The mission of the Bureau of Air Quality is to conserve and enhance air resources in a manner that promotes quality of life.

To support its mission, the Bureau of Air Quality, in cooperation with the central office, district, and air laboratory staff, assures responsible stewardship of air quality and provision of customer service by:

- Assuring the air quality is within the limits described by State and Federal laws and defined in permits, licenses, and certifications;
- Monitoring and sampling air pollution sources and the ambient environment;
- Assessing the impact of environmental emergencies and providing timely responses;
- Responding to requests for air quality related information in a timely manner;
- Administering an inspection and certification program for asbestos renovation and demolition projects;
- Designing and implementing emission control regulations;
- Issuing construction and operating permits for regulated sources of air emissions; and
- Taking enforcement actions when appropriate.

Public Participation

Public participation is encouraged to aid the State in implementing a plan or program which will be cost-effective, environmentally compatible, and have the widest public acceptance and opportunity for implementation. The issues that are involved in addressing environmental problems and in expenditures of large sums of tax revenue are often sensitive and frequently result in conflicting views from parties with varied interests. Although the primary responsibility for administering air pollution control and abatement programs rests with governmental agencies, public involvement in the decision making and implementation process is desirable and necessary. The intent of public participation is to promote cooperation and mutual trust between the public and governmental agencies in an effort to restore and maintain the nation's environmental assets.

You may reach the Bureau of Air Quality by phone at (803) 898-4123 or by fax at (803) 898-4117.

Public Involvement

A variety of Federal and State laws give citizens the right to comment on regulations, permit applications, and other proposals before a state agency can put them into effect. The air quality program takes the citizens' right to comment seriously. We continue to look for innovative ways to involve the public more effectively in developing and promulgating regulations and policies and in reviewing permit applications.

Interested parties may get involved by:

- being aware of regulations and policies under development;
- participating in or attending advisory committee, stakeholder, regulatory negotiation, or public information meetings on regulations;
- commenting on regulations when they are formally published for review; and
- presenting comments at public hearings.

Early involvement in the process is key to effective and successful participation.

Public Hearing

State Agency Rule Making and Adjudication of Contested Cases, S.C. Code of Laws, Chapter 23, 1-23-110, provides for notice and public hearings prior to any action by the Board of Health and Environmental Control. Actions taken by the Board may relate to adoption, amendment, or repeal of regulations and standards, adoption or modification of final compliance dates, and other specified legal actions. A thirty-day public notice is required before a public hearing is held. A comment period of at least 30 days is also provided concurrent with the public hearing notice. Additionally, public notice and opportunity for comment are required prior to issuance of significant industrial permits.

Public Information

Information on air quality in South Carolina can be accessed via the World Wide Web. The Bureau of Air Quality (BAQ) Home Page address is:

http://www.state.sc.us/dhec/eqc/baq/

The BAQ Home Page provides current information on air quality programs to assist industries, small businesses, consultants, governmental agencies, teachers, students, and the general public. The following list contains some of the information found on the BAQ Web Page.

Bureau of Air Quality

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control

- General air quality facts
- Permit application forms
- Permit application status
- Modeling software, meteorological data, and modeling questionnaires
- Emissions Inventory forms, guidance documents, and software updates
- Asbestos information, demolition, and project notification forms
- Accidental Release Prevention Program (112r) information
- Telecourse and workshop listings
- Air quality information for students (K-12) and teachers
- Daily ozone forecasts
- "Spare the Air" program information
- Small Business Assistance Program information

Additional information on health and environmental issues can be found on the SC DHEC Home Page. The SC DHEC Home Page address is: ***http://www.state.sc.us/dhec/***. You may contact the main SC DHEC information phone line at (803) 898-3432.

EPA

For more environmental information, visit the **Environmental Protection Agency (EPA) Home Page** at: ***http://www.epa.gov/***. The EPA Region 4 Office in Atlanta may reached by phone at (404) 562-8357.

Distribution

Additional copies of the 1998 Air Quality Annual Report may be requested by fax at (803) 898-3800 or by writing to:
Materials Library
Educational Resource Center
SC DHEC
2600 Bull Street
Columbia, SC 29201

The report may also be accessed on the BAQ Web Page

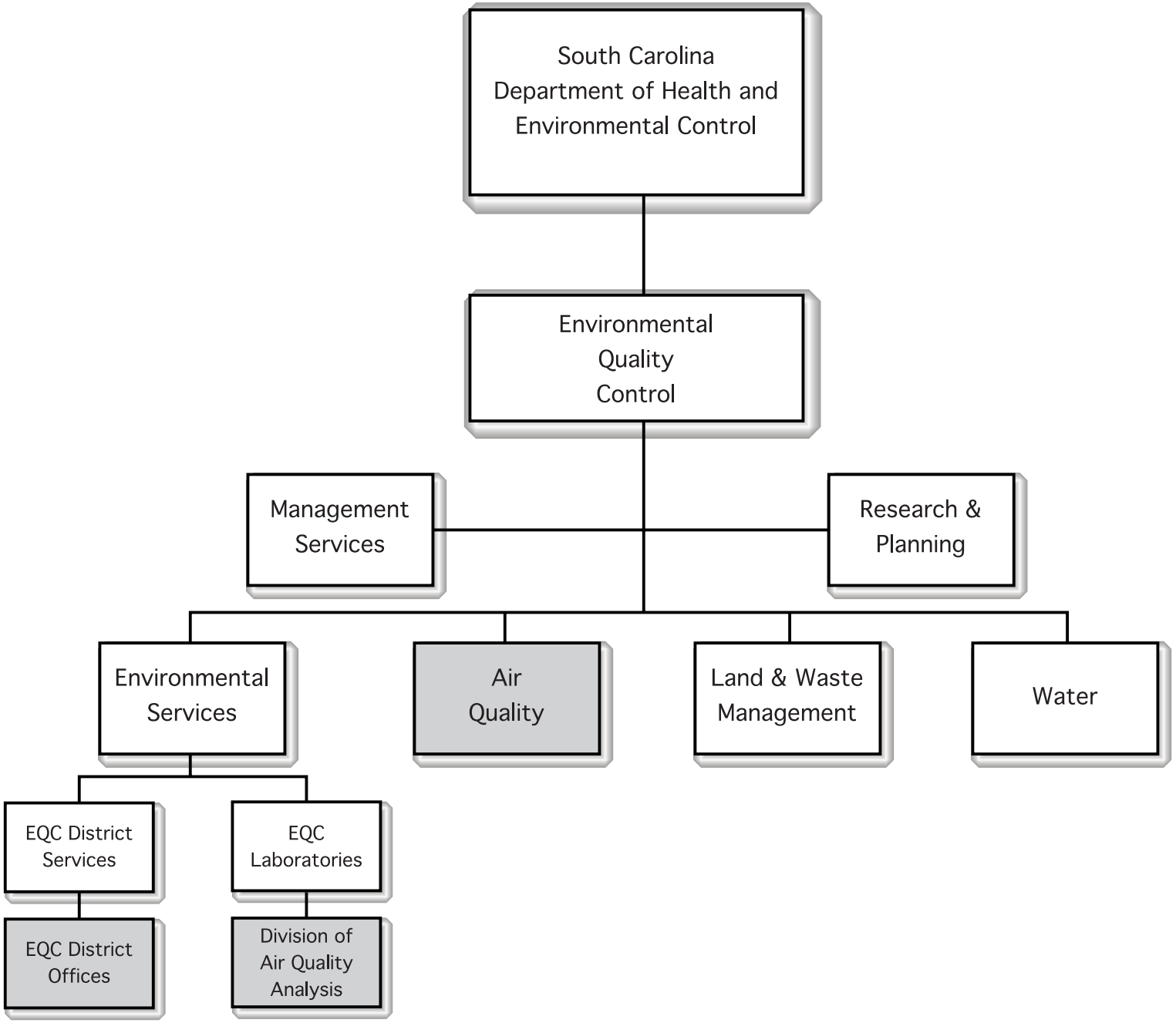
Environmental Quality Control Organizational Chart

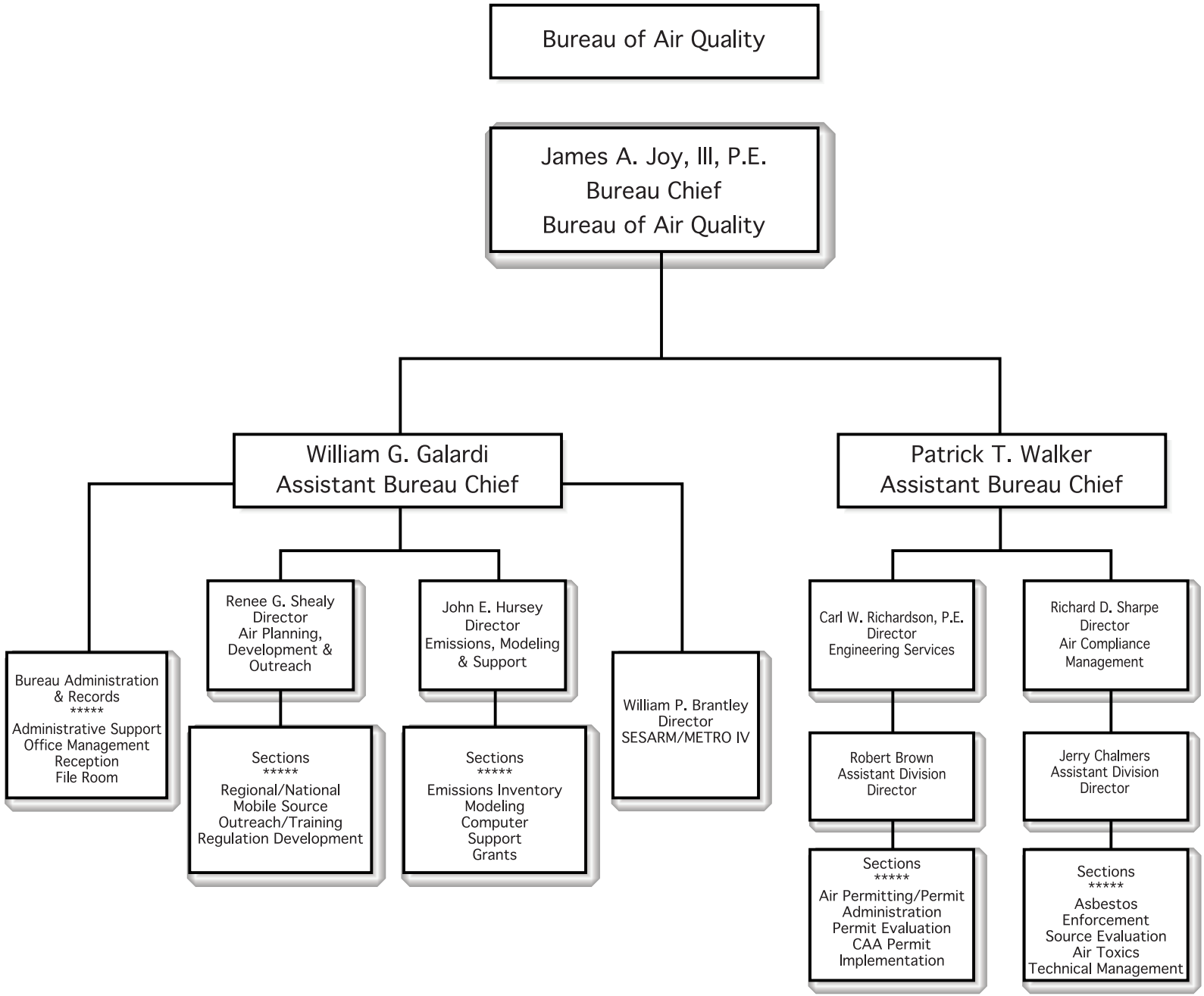
Agency Values

Customer Service: Meeting or exceeding customers' identified needs and expectations with quality service.

Teamwork: Working together to make decisions and reach common goals.

Use of applied scientific knowledge for decision making: Using rational methods and scientific knowledge to guide our professional judgements.





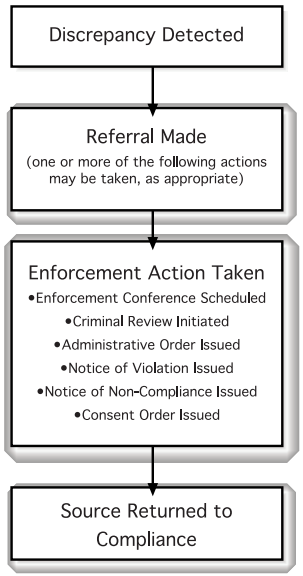
Editor's Note: For informational purposes, this chart represents the most current Bureau structure. The reflected reorganization occurred after the 1998 calendar year.

Enforcement Section

Section Overview

The main objective of the Enforcement Section is to facilitate the return of facilities, individuals, corporations or municipalities in non-compliance to compliance. To accomplish this objective, the Air Compliance Section utilizes five mechanisms:

1) Notice of Non-Compliance
2) Notice of Violation (NOV)
3) Notice of Enforcement Conference
4) Consent Orders
5) Administrative Orders



Compliance Violation Flow Chart

Section Activities

- Issues Notices of Violation to sources in non-compliance
- Negotiates with non-complying sources to resolve violations
- Issues Consent Orders and Administrative Orders to sources in non-compliance
- Prepares reports for the DHEC Board, the EPA, and others
- Reviews Title V permit applications and Conditional Major permits
- Provides compliance assistance

1998 Section Accomplishments

- Issued 248 Notices of Violation
  - 165 for Stationary Sources
  - 42 for Open (Outdoor) Burning
  - 41 for Asbestos

- Issued 78 Orders (Central Office):
  - 54 for Stationary Sources
  - 13 for Open Burning
  - 11 for Asbestos

- Total penalties assessed for 1998:
  - $536,800.00

1998 Special Projects

1. A Guide Through the Administrative Enforcement Process

This guide is attached to Notices of Violation/Notices of Enforcement Conference that are issued to sources determined to be in non-compliance. The guide is intended to provide a non-complying source the answers to some commonly asked questions regarding the enforcement process and consent orders.

2. Charleston Community Based Environmental Protection Project (CCBEPP)

The overall goal of the CCBEPP is to focus on environmental or noncompliance issues in the Charleston and North Charleston area. One of the key elements of this approach is developing partnerships with individuals, agencies, and other entities in a community. The air quality workgroup has not identified any major air pollution problems. However, the consensus of the workgroup is that lack of awareness and understanding of potential air quality issues by the community and industry is a challenge. The workgroup plans compliance assistance activities including seminars, workshops, on-site visits, and mass mailings. The intended outcome of the two to three year CCBEPP project is a cleaner environment, industrial activities carried out in a more environmentally conscious manner, and a better informed community.

3. Presentation to the German/Austrian woodworking group

In August 1998, the Enforcement Section participated in the first ever inbound foreign trade mission organized by the South Carolina Department of Commerce. A presentation was made to a visiting delegation of German and Austrian woodworking company representatives. The presentation focused on Federal and State environmental regulations specifically related to air quality concerns in woodworking operations. The ultimate goal of the project was to promote sales of wood products and specific wood product components that are made in South Carolina. The Department of Commerce reported that efforts to introduce South Carolina to senior level executives from Europe were very successful.

1998 Air Quality Complaints

Open Burning
960

Odor
247

Fugitives/Dust
131

Asbestos
48

Indoor Air
77

Miscellaneous
105

Section Overview

The Technical Management Section collects and reviews monitoring and record-keeping reports. Sources of air pollution are required to submit these reports by State and Federal regulations and permit requirements. The Section also receives and reviews all inspection/investigation reports generated as a result of district inspector activity at sources of air pollution. These reports are reviewed and tracked in computerized databases.

Reports indicating non-compliance are referred to the Enforcement Section for further action. The Technical Management Section also tracks reporting of facility hazardous chemical inventory information, provides assistance in managing emergency conditions from potential site releases, carries out district liaison activities, performs quality assurance of source inspections, and makes indoor air quality referrals. Title V and Conditional Major monitoring plan review and review of annual compliance certifications are also conducted by this section.

Continuous Emission Monitor (CEM) Information

Continuous Emission Monitor Quarterly Reports
760

Continuous Monitor Excessive Emission Quarterly Reports
722

Section Activities

- Review facility reports and district inspection reports for accuracy and completeness
- Review hazardous chemical use, storage, and release reports
- Maintain databases to track routine reports, inspection reports, and hazardous chemical reports
- Conduct evaluation inspections with district air program inspectors to ensure statewide consistency
- Review Title V annual compliance certifications
- Coordinate outreach efforts to assist sources in understanding new regulatory requirements
- Report quarterly data to EPA to fulfill grant requirements
- Ensure district personnel are apprised of activities and new guidance from the Bureau
- Provide data, dispersion modeling support, and technical assistance to Local Emergency Planning Councils and others
- Refer non-compliant sources to the Enforcement Section for further action
- Coordinate multi-media and other special inspection and investigation projects
- Review required monitoring plan submittals for approval
- Evaluate requests for extensions of compliance dates and determine acceptance or denial
- Evaluate incinerator operator training courses and track who has received training
- Address questions regarding indoor air pollution, provide information, and make referrals

Section Accomplishments

- Reviewed over 4000 facility-generated reports
- Reviewed over 2000 district-generated inspection reports
- Processed over 1600 Tier 2 chemical storage reports
- Conducted 69 evaluation inspections with district air program inspectors
- Processed over 300 reports on new hazardous substances

Special Projects

The Technical Management Section developed a "draft" step-by-step inspection procedures manual to be used by the agency's district air personnel. The manual, entitled *The Bureau of Air Quality Inspection Procedures Guidance Manual*, contains standard operating procedures for preparing for and conducting inspections and investigations at sources of air pollution. The manual will be provided to each district air inspector as a Bureau standard.

In an ongoing effort to involve the community in the compliance process, about thirty-five site visits were conducted for Local Emergency Planning Committees and fire departments. These visits involved training in the use of computerized air dispersion models and the use of hazardous chemical facility reports. This support aids in planning for and responding to potential releases at industrial sites.

An outreach effort was initiated to inform sources receiving general conditional major permits of reporting and record keeping obligations. Due to the operational constraints required for general permit sources, certain asphalt plants, fuel combustion sources, and textile greige plants have special record keeping and reporting requirements to ensure continued eligibility. About one hundred sources were contacted to ensure that each affected source was aware of the new requirements.

Section members provided outreach in a continuing effort to keep facilities with chromium electroplating and halogenated solvent degreasing processes aware of reporting requirements and upcoming deadlines specified by Federal regulations.

The section hosted four quarterly district meetings that brought district air section managers together for training, discussions of mutual challenges and potential solutions, updates on events, regulatory changes, and guidance.

Section Overview

The Source Evaluation Section assesses the compliance status of stationary sources. The acceptability of source test data for emission factor development and permit fee assessment is determined through the observation of source tests and review of source test reports. The Section is also responsible for ensuring conformance with 40 CFR Part 75 - Acid Rain and other Federal and State continuous emission monitor certification and quality assurance requirements.

Section Activities

- Review and approve source test plans
- Observe source tests
- Review final test reports for accuracy and completeness
- Prepare results summaries indicating source compliance status
- Review and approve continuous emission monitor site and installation plans
- Observe continuous emission monitor certification tests and quality assurance audits
- Certify acceptance of continuous emission monitoring systems
- Coordinate source test schedules with district staff
- Inspect facilities to determine acceptability of source test methodologies
- Notify sources of periodic retest dates
- Maintain the source test emissions database
- Maintain the source periodic retest database
- Maintain the test plan submittal, test scheduling, and final report receipt database
- Maintain the continuous emission monitor certification and auditing database
- Review and comment on draft Title V permits

1998 Section Accomplishments

- Completed development of a new source testing regulation in 1997. (During 1998 the SC State Legislature approved this regulation and it was published in the State Register on June 26, 1998)
- Conducted 167% of the federally-mandated acid rain continuous emission monitor audits
- Processed 100% of all test plans within mandated time frames

1998 Special Projects

Two source test regulation implementation workshops were held in June 1998. These workshops were presented to help source owners or operators and environmental consulting firms interpret the new regulation and assist them in developing site-specific test plans. The success of these workshops was evident by the easy implementation of the regulation and the ability of facilities and staff to meet mandated deadlines.

Section Overview

Public awareness of the potential hazards from accidental chemical releases has increased over the years. In an effort to prevent accidental chemical release incidents, the United States Environmental Protection Agency (EPA) promulgated 40 CFR part 68. This regulation, commonly referred to as the Risk Management Program Rule, applies to facilities that use, store, handle, or manufacture certain quantities of any substance(s) listed within the rule. The rule lists 77 toxic and 63 flammable compounds.

The Bureau of Air Quality (BAQ) is committed to implementing the Risk Management Program Rule in South Carolina, where an estimated 900 facilities will be affected. On August 28, 1998, SC DHEC promulgated South Carolina Regulation 61-62.68, entitled Chemical Accident Prevention Provisions. This regulation adopts the requirements of 40 CFR part 68 for implementation and enforcement in South Carolina. Risk Management Plans are available on the Internet and can be accessed through the EPA's Envirofacts Website at: ***http://www.epa.gov/enviro/index_java.html.***

Section Activities

- Participate in national workgroups to assist the EPA and other local, state, and federal agencies with implementation of the Risk Management Program
- Conduct compliance audits and provide regulatory oversight for facilities subject to the Risk Management Program Rule
- Conduct outreach activities to facilities, trade groups, Local Emergency Preparedness Committees (LEPCs), and other entities to increase awareness of RMP Rule requirements
- Provide a means for the dissemination of information to affected facilities and LEPCs in South Carolina

1998 Section Accomplishments

- Promulgated South Carolina Regulation 61-62.68 on August 28, 1998.
- Conducted three Risk Management Training Courses entitled Communicating Risks to the Public, in Spartanburg, Columbia, and Charleston.
- Worked in conjunction with the Small Business Assistance Program (SBAP) to conduct outreach activities to various trade groups and professional associations.
- Secured an EPA grant to provide financial assistance for two local projects. This grant was used to fund outreach and public awareness activities for the Spartanburg Accidental Release Prevention Awareness Project (SARPAP). Projects included production of a public awareness video released in early 1998 and a public information meeting and presentation for the Low Country Accidental Release Prevention Awareness Project held in early 1998.

Some Common 112(r) Affected Facilities

Propane Dealers & Users

Water & Wastewater Treatment Plants

Chemical Plants

Pulp & Paper Mills

Ammonia Refrigeration Facilities & Warehouses

Swimming Pool Complexes

Federal Facilities

Wood Product Industries

Electronic Component Manufacturers

The majority of affected facilities will be subject to 112(r) for chlorine, propane, and ammonia.

Modeling Values

For modeling purposes, use the following concentration values in determining background concentrations

Total Suspended Particulates

Annual: Geometric Mean

Particulate Matter 10

Annual: Arithmetic Mean
24 Hour: 2nd Max Value

Sulfur Dioxide

Annual: Arithmetic Mean
24 Hour: 2nd Max Value
3 Hour: 2nd Max Value

Nitrogen Dioxide

Annual: Arithmetic Mean

Carbon Monoxide

8 Hour: 2nd Max Value
1 Hour: 2nd Max Value

Modeling Section

Section Overview

The Air Modeling Section provides support to the Air Compliance Management and Engineering Services Divisions through the review of air dispersion modeling analyses. These analyses may be submitted in support of construction permit applications, operating permit renewal applications, Title V major and Title V conditional major permit applications, and compliance demonstrations. These analyses are done to show attainment with one or more of the following regulations:

- S.C. Ambient Air Quality Standards (SC Regulation 61-62.5, Std No. 2)
- S.C. Air Toxic Standard (SC Regulation 61-62.5, Std No. 8)
- Ambient Air Limits for Prevention of Significant Deterioration (SC Regulation 61-62.5, Std No. 7)

This Section is also involved in determining impacts to South Carolina due to changes in the National Ambient Air Quality Standards (NAAQS) for ozone. This work will involve the development of a very large-scale model to assess ozone impacts and then the determination of appropriate control measures to ensure compliance with the new standard.

In addition, personnel perform research and provide guidance on climatology issues and Class I area (park and wilderness reserves) impact issues.

Section Activities

- Review modeling submittals for completeness, accuracy, and demonstrated attainment of the appropriate standards
- Maintain inventory of stack parameters for use in PSD modeling and other special modeling analyses
- Provide guidance on air dispersion modeling issues to consultants, industry, private citizens, and other Bureau personnel including Class I issues, 112(r), and Leak Detection and Repair (LDAR)
- Participate in regional modeling activities such as the Southern Appalachian Mountains Initiative (SAMI)

1998 Section Accomplishments

- Reviewed over 600 model submittals.
- Began an ozone forecasting program for the Columbia and Greenville areas.
- Completed a review of the Cape Romain Class I area for cumulative sulfur dioxide impacts.

Class I Areas

Class I areas are parks and wilderness areas designated by the U.S. Congress to be preserved in a relatively pristine condition. Industries locating within sixty two miles (100km) of these areas are required to meet additional strict Federal standards for pollution control. Cape Romain is the only Class I area in South Carolina. The Cape Romain National Wildlife Refuge area is located in Charleston County, just east of the Intracoastal Waterway between Charleston and Georgetown. Since 1983, South Carolina has been monitoring this area to determine what changes, if any, are occurring as a result of man-made pollution. Large facilities with significant sulfur dioxide emissions (e.g. power plants) may find it difficult to locate near Charleston or Georgetown because of the Cape Romain Class I area. More than 94 percent of the allowable Class I level for sulfur dioxide has been used at Cape Romain.

Additionally, emissions from sources in South Carolina have the potential to affect other Class I areas that are located in western North Carolina. These Class I areas are the Great Smoky Mountains National Park, Joyce Kilmer Wilderness Area, Shining Rock Wilderness Area, and Linville Gorge Wilderness Area. To ensure adverse effects are not caused by new major construction in the northwest portion of South Carolina, projects in these areas are required to undergo a Class I review. Current air quality conditions in these Class I areas may require large new sources to install additional controls to ensure they will not have a negative environmental impact on any of these Class I areas. Applicants proposing projects in these areas are encouraged to meet with the Department and the Class I area's Federal land manager to allow an early exchange of project plans, Class I area concerns, and ideas for resolving these concerns. Early communications may facilitate the project review and minimize potential delays in the review process.

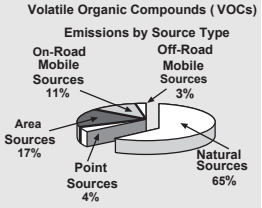
Leak Detection and Repair Program

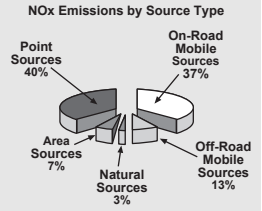
The South Carolina Leak Detection and Repair (LDAR) Program was started in 1994 to help companies in their efforts to comply with the State Toxic Air Pollutant Standards (Standard 8). The LDAR Program allows companies to show compliance with Standard 8 by inspecting and monitoring leak prone sources instead of submitting air dispersion modeling for the sources. Participation in the program is voluntary, but companies must meet certain criteria before acceptance into the LDAR Program.

Sources that can be included in the LDAR Program include:

- Pumps;
- Compressors;
- Pressure relief devices;
- Sampling connector systems;
- Open-ended valves; and
- Any line, flange or connector that contacts a solution that is by weight at least ten percent of one or a combination of air toxics listed in Standard 8.

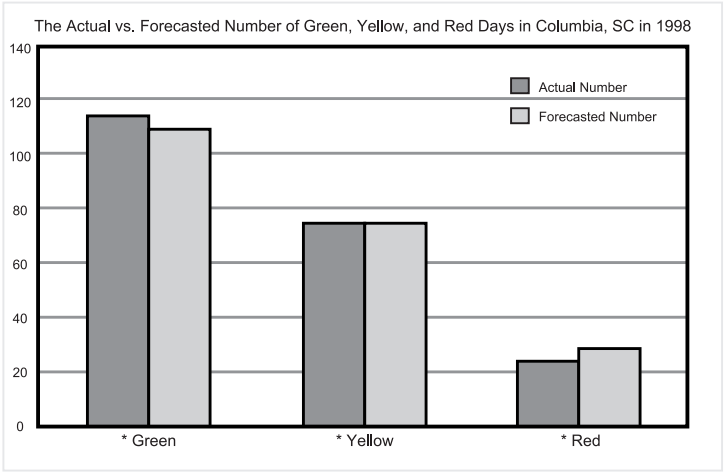
Industries locating within sixty-two miles (100 km) of a class one area are required to meet additional Federal standards for pollution control.





The winter of 1997/1998 featured the development of one of the strongest El Ninos on record. El Nino disrupted the normal weather patterns across the North American continent. The unusually strong El Nino strengthened the subtropical jet stream across the southern United States and pushed the polar jet stream far to the north. As a result, South Carolina experienced a mild and wet winter.

The wet weather continued into April as an unusually strong southern jet stream continued across the southern US. By mid-spring, El Nino was rapidly disappearing and the southern jet stream began to fade, changing the weather pattern over the region. By the end of May, hot and dry weather became firmly entrenched across South Carolina. A large upper-level ridge became established over the Gulf Coast states and cut off most of the Gulf of Mexico moisture. In addition, the circulation around this high pressure area resulted in a hot and dry westerly flow into South Carolina. This weather pattern did not fare well for the ozone season of 1998. By mid-May, ozone levels were climbing above the new more stringent eight hour standard.



Green = low levels of ground-level ozone
Yellow = moderate levels of ground-level ozone
Red = high levels of ground-level ozone

Hot and dry weather continued into early July as a result of a stubborn area of high pressure centered over the Southeast. By mid-July, 17 red categories for ozone had been issued for the midlands and 18 red categories had been issued for the upstate. The upper-ridge began to retrograde to the west by mid-July and became centered over Texas. As a result, ozone levels dropped back down to near normal levels for much of July and early August.

Mid-August through October once again featured a drier and warmer pattern than usual. By the end of the ozone season, 38 reds were issued for the upstate and 29 reds were issued for the midlands. Warm and dry weather continued to dominate the region's weather into November and December. This pattern continued into the winter of 1998 due to the development of a moderate La Nina.

Section Overview

The Emission Inventory Section is responsible for estimating the quantity of pollutants emitted to the air. The estimates are used to:

1) satisfy federal reporting requirements,
2) identify activities that have the greatest impact on the air quality in the state, and
3) serve as a basis for fee determination.

Standardized, nationally recognized emission estimation methodologies are used to achieve the highest standards of accuracy, consistency, and fairness.

Section Activities

- Collect data from major sources biannually and calculate emissions inventories
- Prepare statewide inventories of area sources, mobile sources (e.g. automobiles, trucks), and biogenic sources (e.g. forests, crop lands)
- Produce non-attainment area and Toxic Air Pollutant (TAP) Inventories
- Assess air fees for all facilities who have an air permit or should have an air permit
- Respond to freedom of information requests
- Participate in national and regional workgroups such as the Emission Inventory Improvement Program (EIIP) and the Southern Appalachian Mountain Initiative (SAMI)

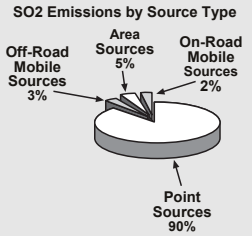
1998 Section Accomplishments

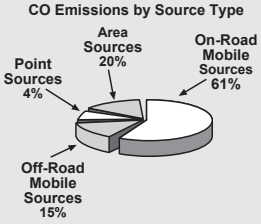
- Offered facilities the option of using an electronic submittal to complete their emission inventory. Of the more than 400 facilities required to submit emissions inventories, 231 used the electronic data option.
- Of the 231 electronic reports received, review of 100 of these inventories was completed in 1998.
- Calculated emissions for 109 of 189 sources who did not use the electronic data option.
- Sent invoices to the facilities who should pay permit fees for the fiscal year (July 1, 1998 - June 30, 1998).
- Refined the Bureau's new source permit fee process to allow greater flexibility and fairness.

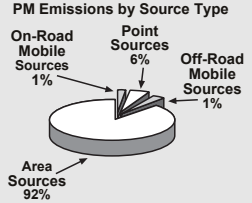
1998 Special Projects

- Held emissions inventory training workshops for industry staff who are responsible for preparing emission inventory data.
- Updated the Environmental Protection Agency's (EPA) NOx SIP Call projections*. These updates included replacing projected data with actual data and inclusion of data elements not previously tracked. Facilities were given the opportunity to provide input on the updates.

*See page 36 for information on the NOx SIP Call.







Asbestos Licensing Disciplines

More than 3500 asbestos licenses are issued annually in the following disciplines:

Contractor

Air Sampler

Consultant

Consultant/Building Inspector

Consultant/ Management Planner

Consultant/Project Designer

Supervisor AHERA (Asbestos Hazardous Emergency Response Act)

Worker (AHERA)

Operation & Maintenance Worker

Worker (Roofer)

Supervisor (Roofer)

Consultant/Roofing Inspector

Group

Facility Operation & Maintenance

Section Overview

The Environmental Protection Agency has categorized asbestos as a Hazardous Air Pollutant. The BAQ's Asbestos Section performs routine oversight of statewide activities involving renovation and demolition of regulated facilities.

Section Activities

- Respond to renovation and demolition project notifications
- License asbestos abatement personnel
- Respond to customer inquiries
- Conduct training for internal and external customers
- Audit asbestos training courses for content, quality, and the effectiveness of the provider
- Make presentations to trade groups and other organizations
- Initiate group meetings to encourage compliance
- Organize meetings and other group forums as necessary to assist the regulated community with regulatory interpretations
- Maintain reciprocity with Region 4 states and other states to promote consistency within the industry
- Respond to out-of-state requests for disposal
- Inspect asbestos sources and make compliance determinations

1998 Section Accomplishments

- Received and reviewed over 4000 project notifications.
- Licensed asbestos abatement projects in 14 categories.
- Issued an annual total of more than 3500 licenses.

1998 Special Projects

- Promulgated revision of SC Asbestos Standards of Performance for Asbestos Projects, May 22, 1998.
- Distributed documents via the Internet to provide updates on the state-of-the art procedures in the asbestos industry. For additional information on these documents, please visit the BAQ web site at ***www.state.sc.us/dhec/eqc/baq/.***

Asbestos Demolitions ...

Demolitions are regulated by DHEC and the EPA. An inspection for asbestos is required prior to demolition. DHEC must be notified of a demolition at least 10 working days prior to starting. Many residential demolitions are exempt.

Section Overview

The Air Programs Section is charged with a diversity of responsibilities; the primary one is providing information and support to both internal and external customers. Some of the other major responsibilities include regulation development, public outreach and education, grant development, training, and computer support for the Bureau.

Section Activities

- Develop regulations and maintain the State Implementation Plan (SIP) to protect the air quality of South Carolina and ensure that national air quality standards are met
- Provide outreach to the public on air quality issues; work with teachers to promote environmental awareness among students in schools
- Assist with annual Federal air program grant and ensure that grant requirements are met
- Provide computer support for the Bureau including operating the local area network, geographic information systems, web page development, computer programming, and hardware/software support
- Coordinate the Bureau's personnel training activities
- Review environmental assessments
- Coordinate mobile source and transportation issues

Training

The training area identifies the training needs and expectations for each position and area of service within the BAQ and assists other groups involved in air quality issues. To accomplish this task, the BAQ uses products and services provided by the EPA Air Pollution Training Institute: area training centers, the Air Pollution Distance Learning Network, and other EPA air pollution control training providers. This utilization enables BAQ personnel to keep abreast of new programs and initiatives and to help satisfy training needs.

The BAQ has made available nationally broadcast programs on the Air Pollution Distance Learning Network. The schedule of telecourses and workshops, which are offered free to the public, can be found on the BAQ web page. To attend a telecourse or workshop, please contact the site coordinator listed on the web page.

The BAQ hosts Visible Emissions Evaluation (VEE) classroom lectures and field certification programs every six months. Air program inspectors are required to maintain VEE Certification in order to conduct observations of stationary source visible emissions and determine compliance with opacity standards. Two "smoke schools" are conducted between both March 1 and May 31, and September 1 and November 30. Through a cooperative agreement, E.I. DuPont conducts two additional smoke schools each year to help provide training to the regulated community.

Editors note: Following Bureau reorganization, the Air Programs section was incorporated as part of the Division of Air Planning, Development and Outreach.

Regulation Development

During 1998, the Department developed regulation 61-62.68, Chemical Accident Prevention Provision. This standard was promulgated in compliance with Federal requirements which required the Department to promulgate a rule at least as stringent as Federal regulation 40 CFR Part 68. The Department incorporated the Federal standard into the State regulations with minor editorial changes.

For more information, call the Bureau of Air Quality at (803) 898-4123

The Department also revised regulation 61-62.72, Acid Rain during 1998. The purpose of the revision was to maintain consistency with Federal rules promulgated by the US Environmental Protection Agency (EPA). The revision streamlined the requirements of the regulation reducing the burden on certain non-cogeneration utilities and the Department. The Department also revised the numbering of R.61-62.72 for consistency with the Federal rule.

The Department revised the definition of volatile organic compound within regulation 61-62.1, Definitions and General Requirements. This revision was promulgated to maintain consistency with the Federal definition.

Several regulations were approved by the General Assembly in 1998. Revisions to Regulations 61-86.1, Standards of Performance for Asbestos Projects, became effective by publication in the State Register on May 22, 1998.

Regulation 61-62.5, Standard No. 8, Toxic Air Pollutants, was revised as a direct result of the regulation reform effort that began in 1995. The revisions to Standard No. 8 were published in the State Register on June 26, 1998.

Regulation 61-62.1, Section IV, Source Tests, was drafted as a new regulation. The regulation requires sources to submit site-specific test plans for review and approval before conducting the test. The final regulation was published in the State Register on June 26, 1998.

Additional Regulatory Actions

(1) "Cherokee County Ozone Attainment Demonstration and Ten-year Maintenance Plan" and "Emissions Inventory Projections for Cherokee County." Section 175(A) of the Clean Air Act Amendments of 1990 (42 U.S.C. 7401 et seq.) and regulations under 40 CFR Part 51 Subpart T require the Department to update the emissions inventory and emissions budget established in the Cherokee County maintenance plan. The South Carolina Air Quality Implementation Plan (SIP) was amended to satisfy the Department's obligation to update the emissions inventory and emissions budget. Documents supporting calculations used in this revision include "1990 Base Year Ozone Emissions Inventory for Cherokee County, South Carolina Non-attainment Area," March, 1995; "2002 Emission Projections Budget for Cherokee County, South Carolina Maintenance Area," May, 1998; and, "Population Projections for South Carolina and Counties, 1995 South Carolina Statistical Abstracts." This SIP revision was approved by the South Carolina Board of Health

and Environmental Control on June 11, 1998; published in the State Register on June 26; submitted to the EPA on July 20, 1998; and approved by the EPA upon publication in the Federal Register, Vol. 63, No. 243, on December 18, 1998.

Proposed Regulations:

(1) A Notice of Drafting was published in the State Register, Vol. 22, Issue 11, on November 27, 1998, proposing to amend "Regulation 61-62, Air Pollution Control Regulations and Standards" and the South Carolina Air Quality Implementation Plan (SIP) to incorporate the provision of the Transportation Conformity Regulations as amended by the EPA upon publication in the Federal Register, Vol. 62, No. 158, on August 15, 1997.

(2) "Regulation 62-60, South Carolina Designated Facility Plan and New Source Performance Standards." This new regulation incorporates by reference the language and requirements of the Federal "Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills (40 CFR Part 60, subpart CC)" and "Standards of Performance for Municipal Solid Waste Landfills (Title 40 CFR Part 60, subpart WWW)," as published in the Federal Register, Vol. 61, No. 49, on March 12, 1996; and as subsequently amended upon publication in the Federal Register, Vol. 63, No. 115, on June 16, 1998. A Notice of Drafting was published in the State Register, Vol. 22, Issue 7, on July 24, 1998. A Notice of Proposed Regulation for Amendment of "Regulation 61-62, Air Pollution Control Regulations and Standards" was published in the State Register, Vol. 22, Issue 11, on November 27, 1998.

Update on non-SIP Revisions Acted on in 1997

Regulation 61-86.1, Standards of Performance for Asbestos Projects, was amended and published in the State Register on May 22, 1998. The regulation clarifies when an asbestos license must be obtained, who can hire the project air sampler, who must inspect an abated area prior to final clearance, when notification for small projects must be made, and when asbestos can be stored on a quarterly basis.

Regulation 61-62.5, Standard No. 8, Toxic Air Pollutants, was published in the State Register June 26, 1998. The revised regulation provides clarification as to whether a facility is required to submit emissions data or perform air dispersion modeling. Furthermore, it describes the circumstances when DHEC will perform modeling for the facility. Updated information on modeling requirements and assistance for small businesses was also included.

1998 Air Quality Modeling Guidelines are available on the Bureau of Air Quality Web page at www.state.sc.us/dhec/eqc/baq

Geographic Information Systems (GIS)

The use of GIS to display environmental and demographic information in graphical form fosters better decision making and allows for a more informed public. Therefore, the BAQ continues to develop and improve upon its GIS.

The use of GIS to display environmental and demographic information in graphical form fosters better decision making and allows for a more informed public.

Locations are being established using global positioning systems with an accuracy of one to three meters. To date, the statewide air monitoring station map layer has been completed and the statewide air regulated facilities map layer is approximately 30% complete. These data sets, additional environmental map layers, census data layers, and infrastructure map layers are available to the public through the Environmental Quality Control (EQC) Information Technology Section. This information is available on CD-ROM complete with a Data Dictionary including detailed explanations of the various map layers, the development standards utilized, and points of contact should there be questions or comments. Future plans for the agency's GIS effort are to supply these and other mapping products via the World Wide Web.

Community Right-to-Know/Toxic Release Inventory (TRI)

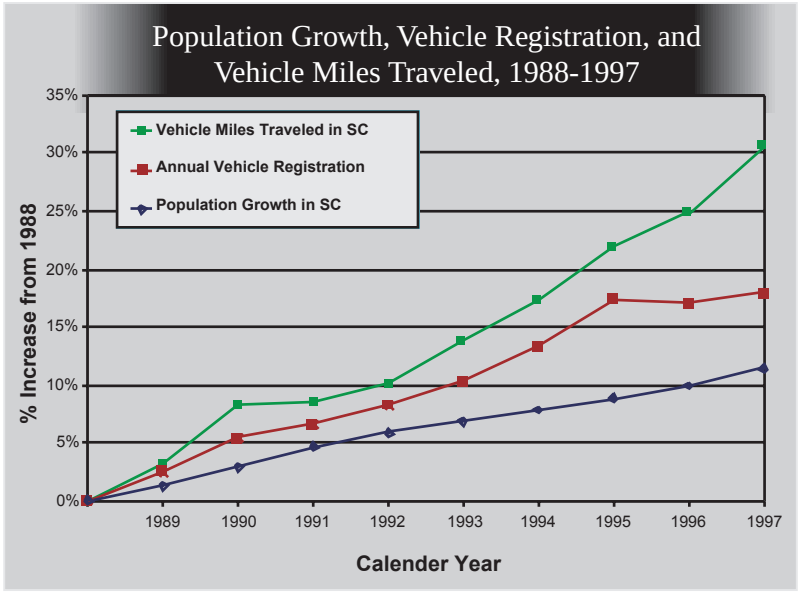
The Superfund Amendments and Reauthorization Act (SARA) Title III created a program to provide information to the public about the chemicals used, stored, and released in their communities. This is commonly known as the Community Right-to-Know.

One important program developed under Community Right-to-Know is the Toxic Release Inventory (TRI). The TRI is a multi-media accounting of industry's usage, treatment, and release of listed toxic chemicals. SC's 1996 TRI data was collected in 1997, reviewed by EPA, and released to the public in June. Figures for 1996 show state industry reported higher amounts of production-related waste over the previous year (655 compared to 630 million pounds). This contributed to SC rising above the national average for total TRI waste per facility. However, releases to the air, land and water declined slightly and remain within less than 10 percent of total waste amounts. Twelve of sixteen industry sectors continued reducing releases of toxic chemicals, but this progress was offset by primary metal industries substantially increasing off-site disposal of heavy metals.

The Community Right-to-Know program has also been involved with Charleston's Community-Based Environmental Protection Project, which is described on Page 9. An important element of the SARA Title III is to encourage communications between industry and the surrounding community by heightening industry's awareness of safety and by assisting the public in understanding chemical risks. Participating in programs such as Charleston's Community-Based Project ensures that this communication occurs.

Mobile Sources

Although much time and many resources are spent on regulating and permitting stationary sources in South Carolina, roughly half of all of the man-made air pollutants do not come from power plants, pulp and paper mills, or chemical plants. Cars, trucks, and other off-road vehicles are large sources of volatile organic compounds (non-methane hydrocarbons), nitrogen dioxide, fine particulates, and carbon monoxide. They are also a major source of carbon dioxide, which is a green-house gas.

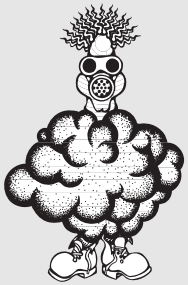


The Clean Air Act targeted automobiles as well as industry, but the regulations reducing mobile source emissions were enacted on a national level and specifically dealt with the car and truck manufacturers. That approach has been very effective in making new cars much cleaner. In fact, the emissions from automobiles has been reduced over 90 percent from the cars made in 1970. The switch to unleaded gasoline is another example of a national program that has made a huge reduction in the amount of pollution our cars make. However, much of this improvement has been offset by the fact that we drive many more miles today than we did in 1970. Also, not everyone is driving a new car or keeping their older car properly tuned.

The air in South Carolina has met all of the national air quality standards set forth in the Clean Air Act and its amendments for the past decade. However, in July of 1997, the EPA made air quality standards more stringent and South Carolina, like most all of the nation, will have difficulty meeting those new standards. If we fail to meet the more stringent standards, we will be required to look at ways of reducing the emissions from mobile and industrial sources.

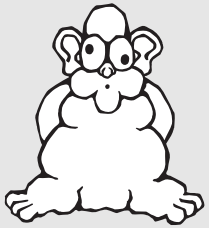
Currently, a proactive non-regulatory effort is being used to help South Carolina meet the new national air quality standards. It is a joint effort between the South Carolina Bureau of Air Quality, industry, and environmentalists. This effort, called "Spare the Air," includes a public information campaign that encourages individuals to voluntarily reduce air pollution. Forecasting is used to identify specific days that are likely to have poor air quality. On those days, citizens are asked to postpone or minimize pollution generating activities until conditions have improved.

Ozone



Particulate Matter

Sources of Air Pollution



Lead

Toxic Air Pollutants

http://www.state.sc.us/dhec/eqc/baq/

Some of the techniques that are recommended are carpooling, consolidating errands, and mowing the lawn after 6 p.m. It is certain that the air pollution from mobile sources in South Carolina must be addressed. With the tougher new air quality standards, we must do more. The health and welfare of our state depend on it.

Outreach

The outreach area informs the citizens of South Carolina about air quality issues and encourages individual efforts toward preserving the environment. Outreach staff perform a diverse number of roles that include delivering lesson plans to K-12 students, lecturing at colleges and universities, representing the agency at professional trade meetings, developing outreach materials, publishing the South Carolina Air Quality Annual Report, and actively participating in regional and national air quality outreach efforts. Staff participated in many public events in the past year such as Kid's Day at Finlay Park, Kid's Safety Day, Champions of the Environment, and various Earth Day activities. One of the primary goals of the area is to make air quality resources readily available to the public. To improve access, a student and teacher web site has recently been completed and efforts are being made to make all outreach materials accessible via the Internet.

Background

The Bureau of Air Quality (BAQ) regulates air emissions in South Carolina. The BAQ enforces state air regulations and acts as the delegated authority for the EPA. In order to maintain air pollution laws and regulations, the BAQ has a permitting system for industrial and commercial facilities in the state. All stationary sources of air pollution in South Carolina must comply with permitting requirements before construction may begin. After construction has been completed and requirements satisfied, the BAQ assures continuing compliance through the issuance of operating permits.

State regulations provide the basis for the BAQ permitting system. These regulations allow for the issuance of construction and operating permits, impose limits for particulate matter (PM) and gaseous point and fugitive source emissions, and set minimum acceptable ambient air quality levels. There is also a health–based state standard for air toxics emissions.

South Carolina has a state Prevention of Significant Deterioration (PSD) regulation based on the EPA's PSD Program. There is one Class I area in South Carolina which by definition allows minimal emissions impact on soils, vegetation, and visibility by new sources. *(See page 15 for additional details)*

The BAQ has been delegated authority by the EPA to implement New Source Performance Standards (NSPS) and certain National Emission Standards for Hazardous Air Pollutants (NESHAP).

On July 26, 1995, South Carolina also received delegation of authority by the EPA to implement the Title V Operating Permit Program codified in South Carolina Regulation 61-62.70. The purpose of the Title V permitting program is to provide a comprehensive air quality operating permit for all major sources of air contaminants. Title V operating permits apply to any major facility defined as having the potential to emit 100 tons per year or more of any air pollutant; and/or which has the potential to emit 10 tons per year or more of any one hazardous air pollutant (HAP) or any combination of HAPs totaling 25 tons per year or more.

To receive a copy of "A General Guide to Environmental Permitting in South Carolina," please fax your request to (803) 898-3800 or write to:

Materials Library Educational Resource Center SCDHEC 2600 Bull Street Columbia, SC 29201

Division Overview

The Engineering Services Division has three permitting sections: Permit Evaluation Section (Upper State), Air Permitting Section (Lower State), and the Clean Air Act Permit Implementation Section. The primary responsibility of the Engineering Services Division is the issuance of Construction Permits, Conditional Major, Title V, and Minor Source Operating Permits. Below are examples of sources and industries that require permits.

- Boilers
- Mines
- Landfills
- Metal Refineries
- Hospitals
- Power Plants
- Asphalt Plants
- Wood Products
- Pulp & Paper Industry
- Concrete Plants
- Chemical Facilities
- Federal Facilities/SRS
- Hazardous Waste/Commercial Incineration

Division Activities

Engineers in the three air permitting sections review plans for construction and operation of sources and their control devices for any release of air pollution. After review, the owner/operator of the source receives a permit containing all applicable Federal and State air standards. The conditions of the permit provide the rules, instruction, and guidance for the user to construct, operate, and maintain the equipment. These conditions must be practicable and enforceable. Conditions are written with the owner, user, inspector, compliance officer, and the public in mind.

1998 Division Accomplishments

Construction Permits Issued: 1063
Operating Permits Issued: 326
PSD Permits Issued: 9
Title V Permits Issued: 47
Conditional Major Permits Issued: 119

Small Business Assistance Program

The 1990 Clean Air Act Amendments are considered among the most comprehensive environmental laws ever enacted in this country. Many of these requirements affect small businesses that often cannot afford to hire staffs of environmental experts to interpret the complex regulations. Realizing that the costs of failing to comply can be quite high, Congress established a program to provide small businesses with technical assistance to help them meet clean air requirements. Under the 1990 amendments, each state was required to implement a Small Business Stationary Source Technical and Environmental Compliance Assistance Program. The Small Business Assistance Program (SBAP) has three parts: a technical assistance program, an ombudsman to serve as small business advocate, and a compliance advisory panel to evaluate program effectiveness.

Because numerous definitions already exist, Congress created its own definitions of small businesses for the purposes of the Clean Air Act. A small business is a stationary source of emissions that meets all of the following conditions:

- Is owned or operated by a person employing 100 or fewer individuals;
- Is a small business concern as defined in the Small Business Act;
- Is not a major source as defined in the Clean Air Act Amendments Titles I and III;
- Does not emit more than 50 tons per year of any regulated pollutant;
- Emits fewer than 75 tons per year of all regulated pollutants.

Environmental technical assistance to South Carolina small businesses is available from the SBAP. The SBAP is a non-regulatory service of DHEC that helped approximately 1,200 small businesses in 1998.

Staff members of the SBAP are available to provide assistance in the following areas:

- Helping owners determine which regulations apply to their business;
- Informing business owners of their rights and obligations;
- Sending technical and compliance information to small businesses;
- Providing information on pollution prevention and accidental release and detection;
- Providing confidential one-on-one consultation through an audit program; and
- Acting as an advocate and liaison for small business to regulatory staff when businesses request modifications of work practices or approval of technological methods of compliance.

Small Business Compliance Advisory Panel

South Carolina's small business assistance effort has a Compliance Advisory Panel that determines the overall effectiveness of the State's program.

Panel members include:

Barney Harmon
Spartanburg, SC

Carroll P. Huffman
Lancaster, SC

Jack Preston
Columbia, SC

Panel members continued on Page 28

Compliance Advisory Panel Members cont'd

Fred Rothaermel
Charleston, SC

Representative William D. Witherspoon
Conway, SC

Art Youngblood
Hodges, SC

Vacant
Public Member

The Small Business Ombudsman located in DHEC'S Office of Environmental Quality Control serves as an advocate for small business owners. Some of the duties of the Ombudsman are to:

- Refer small business owners to the appropriate technical specialists;
- Review and comment on regulations that affect small businesses;
- Initiate outreach activity towards the small business community;
- Participate in and sponsor meetings and conferences with the regulatory officials, industry groups, and small business representatives;
- Help investigate and resolve complaints and disputes from small businesses with DHEC's air program;
- Seek public and private funding sources that can financially assist small businesses in complying with air pollution control laws; and
- Periodically evaluate the effectiveness of services and customer satisfaction.

Mailing Address: DHEC-SBAP
EQC Administration
2600 Bull Street
Columbia, SC 29201

Telephone: (803) 898-3997
1-800-819-9001

Website:
http://www.state.sc.us/dhec/eqc/admin/html/sbap.html
E-mail: copelapt@columb30.dhec.state.sc.us

Small businesses that may need permits . . .

Abrasive blasting operations
Autobody shops
Concrete batch plants
Cotton gins
Crematories
Dry cleaners
Fiberglass product manufacturing facilities
Foundries
Furniture manufacturers
Grain elevators, silos
Incinerators
Industrial furnaces/ovens
Marble manufacturing facilities
Organic and inorganic chemical manufacturers
Paint manufacturers and applicators
Plating operations
Printing shops/graphic arts companies
Rubber and tire manufacturers
Sand and gravel operations
Soil remediation operations
Solvent cleaning operations
Surface coating operations

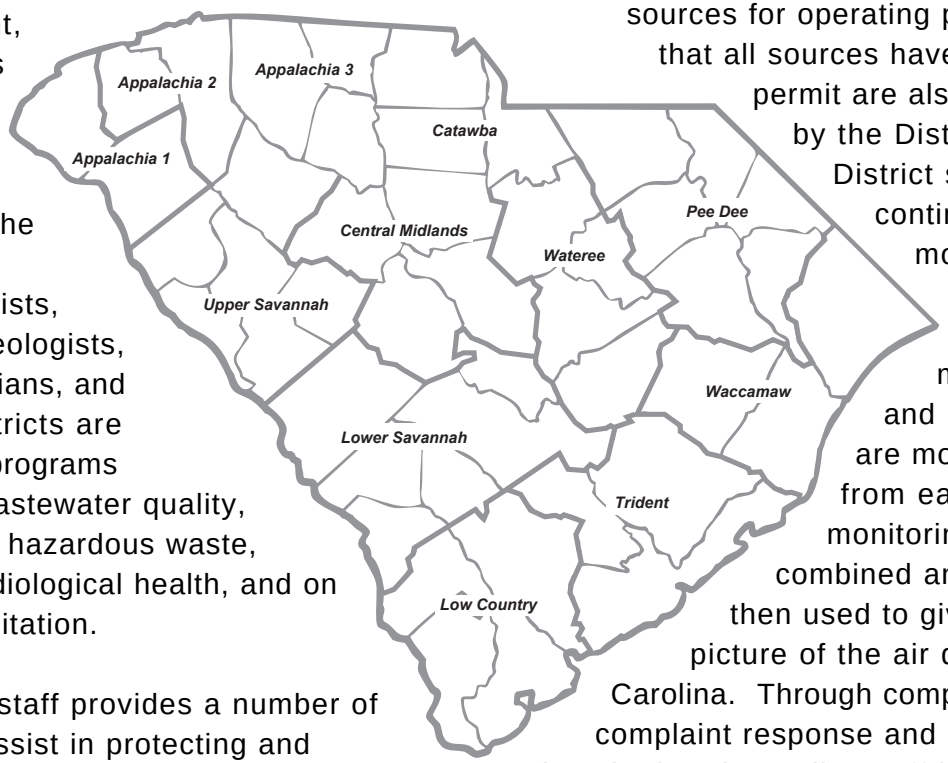
SBAP
SMALL BUSINESS ASSISTANCE PROGRAM

District Air Sections Overview

There are twelve Environmental Quality Control (EQC) District Offices located strategically around the state. District staffs vary from district to district based on such factors as size of the area covered, population, the amount of development, and regulated activities occurring in the particular area. District personnel include some or all of the following specialists: inspectors, microbiologists, biologists, chemists, geologists, engineers, field technicians, and support staff. The districts are involved in most EQC programs including: water and wastewater quality, air quality, solid waste, hazardous waste, recreational waters, radiological health, and on the coast, shellfish sanitation.

The district air quality staff provides a number of services designed to assist in protecting and maintaining the quality of the air in South Carolina. One of the primary responsibilities of the District Air Quality staff is to receive and respond to all citizen concerns involving excessive emissions, odors, and open burning. Another area of responsibility involves facility compliance. Facilities (sources) in each district are inspected each year for compliance with operation, maintenance, and visible emissions requirements. Inspecting new sources for operating permits and ensuring that all sources have a current operating permit are also activities handled by the District Air Quality staff. District staff also maintain continuous air quality monitoring stations. Long term trends for particulate matter, ozone, SOx, and NOx concentrations are monitored. Results from each of the district monitoring programs are combined and integrated, and then used to give a comprehensive picture of the air quality in South Carolina. Through compliance inspections, complaint response and monitoring activities, the District Air Quality staff helps ensure that ambient air quality is maintained at the highest possible level.

EQC Districts



1998 Inspection Information

Annual Industry Inspections Performed (all sources)
1,284

Major Point Source Inspections (Annual)
629

NSPS Source Inspections
99

NESHAP Source Inspections
16

Continuous Emission Monitor Inspections
136

NOVs issued for Open Burning
137

Total Complaints Investigated
1,568

Division Overview

The Division of Air Quality Analysis (DAQA), a part of the Bureau of Environmental Services, operates a network of ambient air monitors and samplers in support of the activities of the Air Quality program. There are 64 sites where at least one of twelve pollutants are monitored. The eight sites designated as National Air Monitoring Stations (NAMS) were chosen in cooperation with EPA and are operated and maintained by DAQA, as part of a national long term air quality monitoring system. The remaining monitors are either State and Local Air Monitoring Stations (SLAMS) chosen jointly by EPA Region 4 and EQC, or Special Purpose Monitoring Sites (SPMS), designed to collect data on South Carolina Ambient Air Quality Standards or address specific local concerns.

There are sixty four air monitoring sites throughout South Carolina.

Maps of sampling and monitoring locations can be found in the appendix.

Of the 64 ambient monitoring sites, 31 sites have continuous monitors. Continuous monitors are used to monitor concentrations of ozone, sulfur dioxide, carbon monoxide, nitrogen dioxide, PM10 (inhalable particulates), carbon dioxide, non-methane organic compounds (NMOC), or meteorological information 24 hours a day. The monitors at these sites require climate-controlled buildings for the instruments. Data are collected via telephone lines or cellular telephone daily from the monitoring sites using automated systems in the central laboratory.

Other sampling at air monitoring sites includes total suspended particulates (TSP), lead, and fluorides. Special Purpose Monitors also include organic sample collections for volatile and semivolatile organic compounds and carbonyls.

Microscopic analysis of asbestos bulk samples is performed in support of the BAQ asbestos program. Certification for bulk asbestos analysis is maintained through the National Voluntary Accreditation Program.

There are eight acid rain stations located throughout the state. Samples are routinely analyzed for pH, conductivity, and specific ions.

Ambient Air Monitoring Network

The state network of samplers and monitors is designed to meet both State and Federal monitoring objectives. Monitoring for criteria pollutants, those that have a National Ambient Air Quality Standard (NAAQS) established, and noncriteria pollutants is performed.

The SLAMS network is designed to meet four main objectives:

- Determine the highest concentrations expected to occur in the state;
- Determine representative concentrations in areas of high population density;
- Determine the impact on ambient pollution levels of significant sources or source categories; and
- Determine general background concentration levels.

The NAMS sites are a subset of the SLAMS network and are used to provide data for national policy analysis. The sites are biased toward expected maximum concentrations and high population density.

The SPMs provide information needed for state and local questions. They may monitor criteria pollutants, pollutants that have a state standard such as Total Suspended Particulate or any other potential pollutant of interest. These monitors may be part of short and long term special studies and often complement the SLAMS and NAMS.

The monitoring methods used for compounds in the ambient air can generally be classified as continuous or integrated.

Continuous methods, used for most of the gaseous criteria pollutants, can provide real time concentrations of individual species. The data is accumulated at the site and recovered by computer over phone lines each day. This information is generally reported as hourly averages of the individual readings.

Integrated samples are collected over longer periods of time, typically from 2 to 48 hours. The analysis of the sample in the laboratory provides an average pollutant concentration for the period sampled. Although the information is not available as quickly, the large amount of air sampled provides better sensitivity.

The methods used by the Division of Air Quality Analysis (DAQA) to monitor ambient concentrations of criteria pollutants are reference or equivalent methods as described in the Appendices to 40 CFR part 51 of the Federal Register. Methodology that is specific for South Carolina instrumentation, the monitoring of SC regulated pollutants, and noncriteria compounds are described in the Division of Air Quality Analysis Quality Assurance Manual.

NAAQS Criteria Pollutants

Ozone (O_3)

Sulfur Dioxide (SO_2)

Nitrogen Dioxide (NO_2)

Particulate Matter (PM_{10} & $PM_{2.5}$)

Carbon Monoxide (CO)

Lead (Pb)

South Carolina Air Pollutants

Total Suspended Particulates (TSP)

Gaseous Fluorides (HF)

Air Quality Assurance Section

The Air Quality Assurance Section assures quality data that are complete, representative, accurate, precise, and comparable. In order to ensure representativeness of data, only EPA reference or equivalent methods are used. In addition, EPA guidelines are followed in the selection of sites. To prevent data of unknown quality from being reported, a series of data validation procedures are carried out. This removes questionable data resulting from human errors and/or analyzer problems. All data are corrected to standard temperature and pressure of 25˚C and 760 mm Hg. This allows comparability among data groups.

In order to assess the potential problems of acid rain in South Carolina, eight monitoring stations have been established.

1. Oconee County, near Longcreek
2. Delta, located in Union County near Whitmire
3. Congaree National Monument in Richland County
4. Cape Romain National Wilderness Area in Charleston County
5. Cowpens National Battlefield in Cherokee County
6. Parklane in Richland County just northeast of Columbia
7. Barnwell County
8. Due West

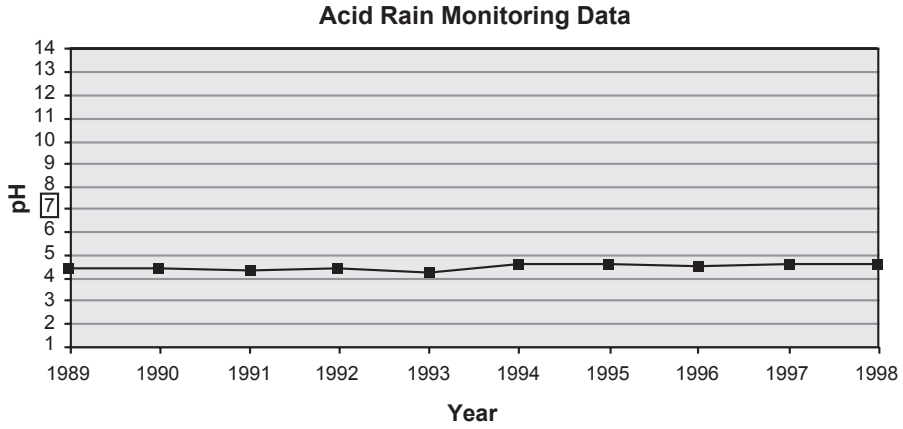
A change of one unit in pH is a ten fold change (pH4 is ten times more acidic than pH5). The overall trend in South Carolina has been to less acidity.

Attainment Status

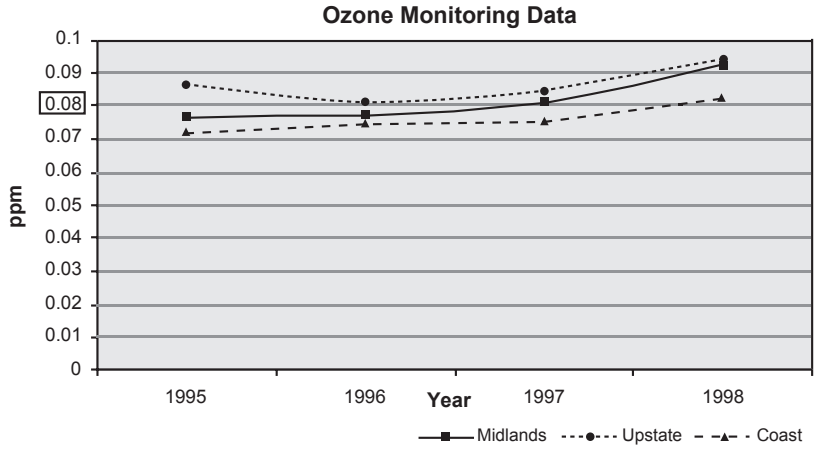
A non-attainment area is defined as any area where air monitoring data does not meet one or more of the National Ambient Air Quality Standards. South Carolina enjoys some of the best air quality in the United States and is one of a few states that currently meets all National Ambient Air Quality Standards. Meeting the standards is important to South Carolinians since clean air has a direct impact on our health, quality of life, and the state's economy. Sampling data continues to show that the entire state is in attainment of the National Ambient Air Quality Standards (NAAQS).

Air Quality Monitoring Data

The following graphs have been provided to give a visual representation of monitoring data. Each graph represents an approximation of the actual data collected. Detailed monitoring data is provided in the appendix.

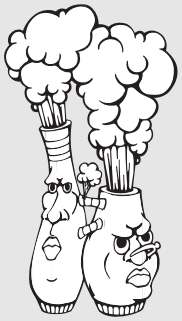


Monitoring results from the acid rain network are displayed over a ten year period. Little change is shown during that period of time. The overall trend is towards less acidity. Neutral pH is represented by the point seven. Sulfur dioxide, also a product of fuel combustion, measures at about eight percent of the standard state-wide.



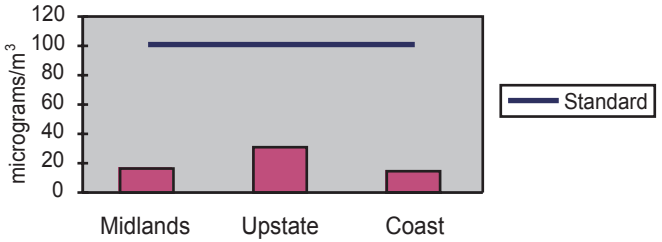
This ozone monitoring data is a representation of data collected relative to the revised eight hour national ambient ozone standard. Ground-level ozone is not emitted directly but is formed as a result of the interaction of nitrogen oxides and volatile organic compounds in the presence of sunlight on hot summer days. On the chart to the left, the point .08 marks the eight-hour ozone standard.

In the following graphs, the solid line at the top of each graph indicates the ambient air quality standard. The three solid bars represent concentrations in the coastal, upstate, and midlands areas of the state respectively.



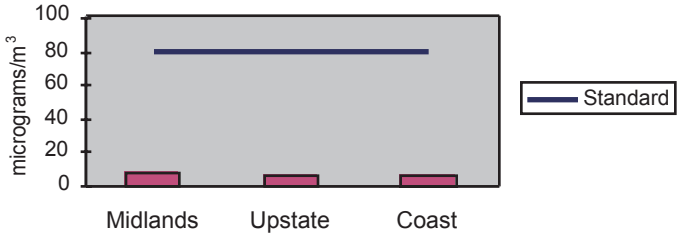
Sulfur Dioxide & Nitrogen Dioxide

Nitrogen Oxides



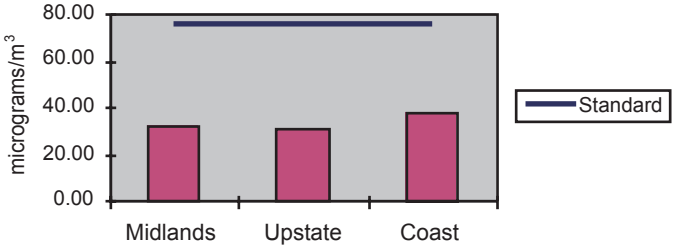
Nitrogen oxides, products of fuel combustion, measure less than 20 percent of the standard in the midlands and coastal areas and around 30 percent of the standard in the upstate.

Sulfur Dioxide



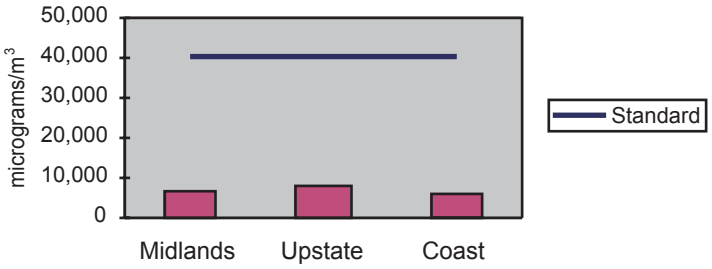
Sulfur dioxide, also a product of fuel combustion, measures at about 8 percent of the standard state-wide.

Total Suspended Particulate



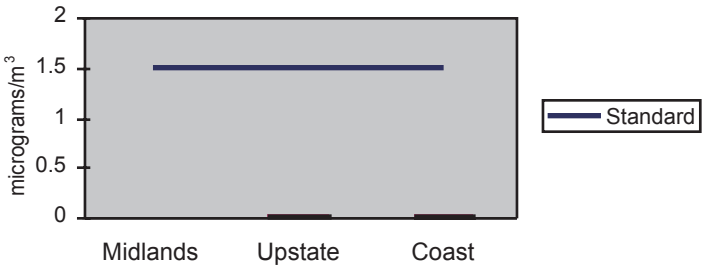
Total particulate concentrations state-wide measure about 45 percent of the standard. Particulate matter is made up of very small solid or liquid particles. One example is dust.

Carbon Monoxide



Carbon monoxide, a product of incomplete combustion, is being measured statewide at about 17 percent of the standard.

Lead



Lead is generally showing up at less than 1/100th of the standard. Except for areas around existing or former plants that use or produce lead, this figure should not see any increase due to the ban on sale of unleaded gasoline. Note: Concentration of lead in the midlands are at such levels that they do not show up on the graph.

As depicted in these graphs, the measured ambient air quality in South Carolina for these pollutants is well below the established standards.

Carbon Monoxide

For the latest information on the NOx SIP Call you may contact the Bureau at (803) 898-4123

Clean Air Act (CAA) Section 126 Petitions

In August, 1997, eight states (New Hampshire, New York, Massachusetts, Maine, Rhode Island, Vermont, Pennsylvania, and Connecticut) filed Section 126 petitions with the EPA stating that sources in other states were interfering with their ability to attain the National Ambient Air Quality Standard (NAAQS) for ozone. Only Pennsylvania's petition named South Carolina as contributing to their air quality problem.

On October 21, 1998, EPA published a notice of proposed rulemaking regarding these petitions. This proposed rule agreed with South Carolina's assessment and indicated that South Carolina was not impacting any of the petitioning states. The proposed rule also indicated that the EPA intended to deny that portion of Pennsylvania's petition which applies to South Carolina. EPA published a final rule on these petitions in April, 1998.

EPA NOx SIP Call

On October 27, 1998, EPA published a final rule commonly referred to as the NOx SIP (State Implementation Plan) Call. This rule calls for reductions of nitrogen oxide emissions (NOx) to the air from sources in South Carolina and comparable reductions in twenty-one other states in the eastern half of the country. The purpose of this rule is to address interstate transport impacts from NOx emission sources into other states located primarily in the Northeast and Midwest which failed to meet the 1-hour national ozone standard. EPA has also stated this rule will enable South Carolina to meet the recently revised federal eight-hour ozone standard.

The rule establishes a NOx emissions budget for South Carolina, and targets reductions from utilities and large industrial sources. South Carolina is committed to the difficult task of determining the actual reductions necessary to meet the new eight-hour standard. However, EPA's NOx SIP Call rule does not afford South Carolina the time and flexibility to determine the mix of controls which will provide the greatest benefit and actually address South Carolina's eight-hour needs. It requires South Carolina and the other twenty-one states to have a SIP in place to meet this rule by September 24, 1998. If states are unable to meet this deadline for any reason, EPA has stated that it will put a Federal Implementation Plan (FIP) in place no later than sixty days from the September 1998 date. This FIP will implement those reductions proposed in the NOx SIP Call.

Because of numerous technical and legal concerns, South Carolina and eight other states have petitioned the Federal courts for a review of this rule. A stay was requested by the petitioning courts to delay submittal of the September 29, 1998, SIP. The courts granted an indefinite stay for this submittal pending their final decision on the court case. Hearings on these petitions are expected in early fall of 1998.

SOUTHEASTERN STATES AIR RESOURCE MANAGERS (SESARM)

SESARM is a non-profit corporation representing the states of Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee. SESARM is managed by a Board of Directors, which is comprised of the air pollution program director for the states listed. SESARM will assess and promote air quality issues in the southeast region of the United States. Its stated purpose is to:

- Enhance communications and joint efforts among members, the U.S. Environmental Protection Agency, and other organizations involved or interested in effective air pollution management, especially as it affects the states in the southeastern region of the country;

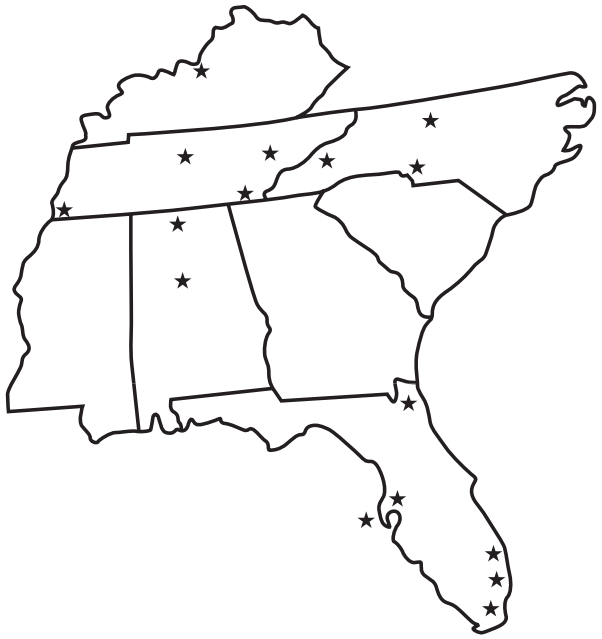
- Improve the overall effectiveness of members in meeting national air quality goals and any related air quality goals specific to the southeastern region of the country or within a specific state of the southeastern region;

- Conduct, contract for, and facilitate research and training useful to meeting the purposes stated herein;

- Evaluate current and emerging air quality issues, develop a consensus among members regarding these issues, and implement steps to resolve such air quality issues; and

- Establish work groups and task forces to investigate specific air quality issues of concern to the members and recommend action to improve and manage such concerns. Emphasis is given to issues that have regional implications or solutions.

William P. Brantley
SESARM Director



*Location of local air pollution programs.

Southern Appalachian Mountain Initiative (SAMI)

The Southern Appalachian Mountain Initiative (SAMI) is a non-profit organization comprised of volunteers. Members include representatives from local, state and federal agencies, industry, academia, environmental groups, and other interested parties. The group works together to find environmentally and economically sound solutions to air quality problems affecting the natural resources of the Southern Appalachian Mountains region. The eight states within the SAMI boundaries are Alabama, Georgia, Kentucky, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.

SAMI will build consensus and support for regional air quality management strategies that will protect the natural resources of the Southern Appalachians from the adverse effects of air pollution. SAMI studies are currently underway to characterize and assess visibility, ozone, and acid deposition issues in the southeast, particularly those in the Class I areas of the Southern Appalachian Mountains.

Various Environmental Quality Control (EQC) and Bureau of Air Quality (BAQ) staff members are active participants in SAMI. R. Lewis Shaw, Deputy Commissioner for EQC, is a member of the Governing Body of SAMI. James A. Joy, III, Chief, BAQ, serves on the Operations Committee. Additional personnel also participate in the modeling and emission inventory activities of SAMI.

R. Lewis Shaw, P.E., Deputy Commissioner, Environmental Quality Control, serves on the Governing Body of SAMI and is past Chairman of SAMI. He is also the current President of ECOS and a member of the Executive Committee.

James A. Joy, III, P.E., Bureau Chief of Air Quality, serves on the SAMI Operations Committee

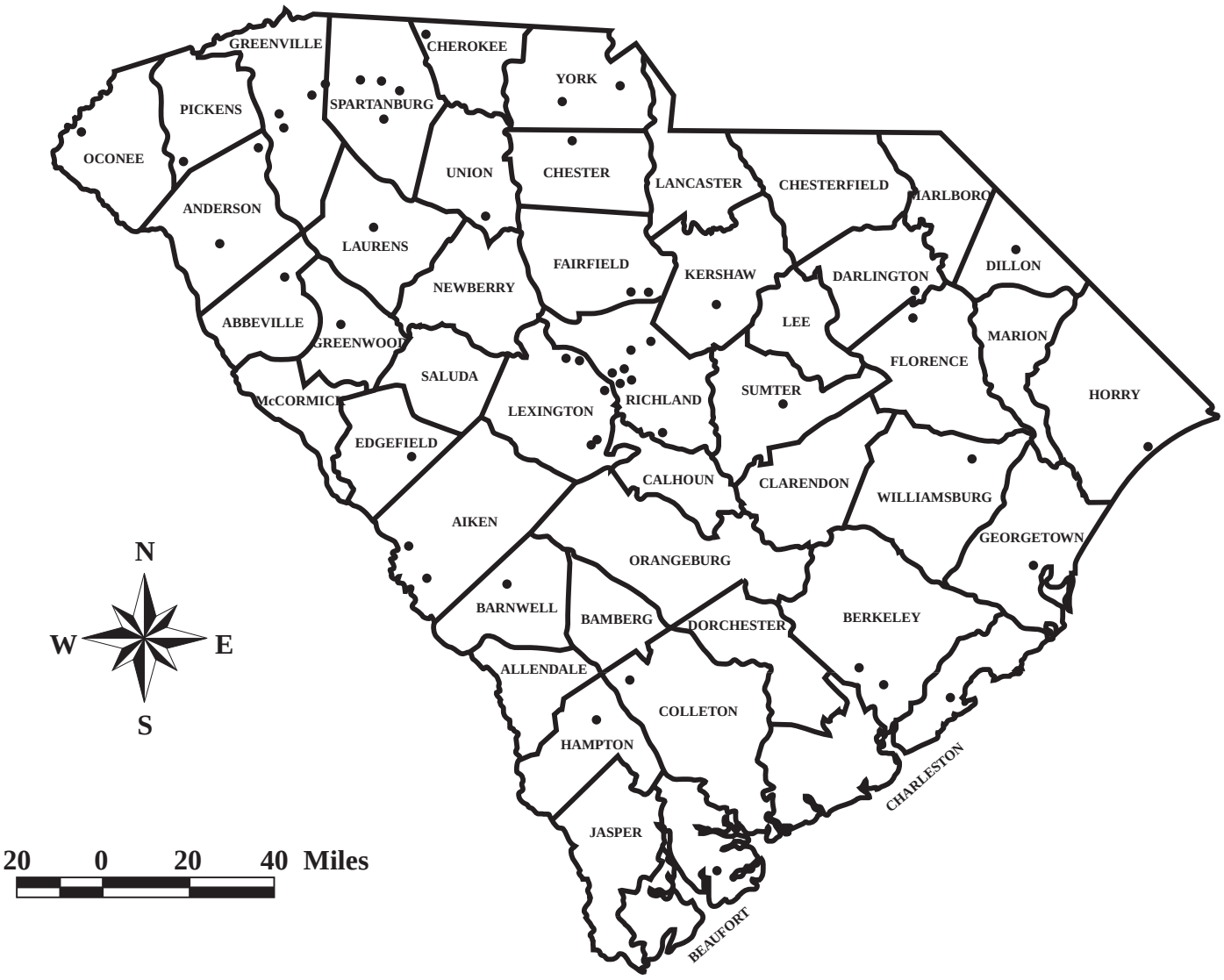
Environmental Council of States (ECOS)

The Environmental Council of States (ECOS) is the national non-profit, non-partisan association of state and territorial environmental commissioners.

The mission of ECOS is to improve the environment of the United States by providing for the exchange of ideas, views, and experiences among the states; foster cooperation and coordination in environmental management; and articulate state positions to Congress and EPA on environmental issues. Current major activities of ECOS involve participation in the review and implementation of environmental policy.

R. Lewis Shaw, Deputy Commissioner for Environmental Quality Control, is the current President for ECOS and is a member of the Executive Committee.

South Carolina Ambient Air Monitoring Network*



*Dots represent air monitoring locations.

For modeling purposes, use the following concentration values in determining background concentrations:

TSP: Annual: Geometric Mean
PM_{10}: Annual: Arithmetic Mean
24 Hour: 2nd Maximum Value

NO_2: Annual: Arithmetic Mean
CO_2: 8 Hour: 2nd Maximum
1 Hour: 2nd Maximum Value

SO_2: Annual: Arithmetic Mean
24 Hour: 2nd Maximum Value
3 Hour: 2nd Maximum Value

Acid Rain Monitoring Data

						Annual Average Weighted pH									
Site ID	County	UTM-N	UTM-E	Site Name	City	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
45-001-0001	Abbeville	3798885	372441	Due West	None	N/A	N/A	4.27	4.44	4.34	4.49	4.57	4.48	4.56	4.52
45-011-0001	Barnwell	3686689	456659	Barnwell CMS	None	4.47	4.40	4.35	4.39	4.38	4.60	4.63	4.52	4.61	4.60
45-019-0046	Charleston	3645423	625453	Cape Romain Wildlife Refuge	None	4.32	N/A	4.37	4.43	4.06	4.69	4.46	4.57	4.57	4.61
45-021-0002	Cherokee	3887596	425589	Cowpens Nat'l Battle Ground	None	4.37	4.46	4.27	4.30	4.26	4.35	4.45	4.37	4.41	4.38
45-073-0001	Oconee	3853517	295290	Round Mt Fire Tower (Long Creek)	None	4.44	4.38	4.27	4.42	4.28	4.51	4.60	4.43	4.53	4.56
45-079-0007	Richland	3772362	503461	Parklane-State Park Health Ctr	Columbia	4.33	4.38	4.30	4.28	4.28	4.54	4.49	4.53	N/A	4.63
45-079-1006	Richland	3741586	516032	Congaree Swamp Nat'l Monument	None	4.36	4.36	4.33	4.44	4.26	4.59	4.58	4.52	4.47	4.64
45-087-0001	Union	3821894	448566	Delta	None	4.38	4.36	4.36	4.39	4.33	4.54	4.52	4.51	4.50	4.57

Carbon Monoxide (CO) Monitoring Data

[*Air Quality Standard = 40,000 µg/m³-1hr, 10,000 µg/m³-8hr*]

Site ID	City	County	Site Name	UTM-N	UTM-E	Obs	1st 1-hr	2nd 1-hr	1st 8-hr	2nd 8-hr	Method
45-019-0005	Charleston	Charleston	Ashe Street	3628743	598588	8573	6,072	5,843	4,583	3,322	054
45-045-0008	Greenville	Greenville	Greenville	3855853	371711	8573	7,447	7,103	6,416	4,926	054
45-079-0013	Columbia	Richland	Wardlaw	3763364	496131	8557	6,530	6,186	4,583	4,239	054

Lead (Pb) Monitoring Data
[*Air Quality Standard = 1.5 µg/m³ - Quarterly*]

Site ID	City	County	Site Name	UTM-N	UTM-E	# Obs	1st	2nd	3rd	4th	Method
45-003-1001	None	Aiken	Beech Island Fire Station	3699184	417032	50	.00*	.00	.02	.01	092
45-013-0001	Beaufort	Beaufort	Beaufort County Health Dept	3588461	530346	42	.00*	.00*	.03	.01	092
45-019-0003	N. Charleston	Charleston	Jenkins Ave. Fire Station	3638529	595618	56	.01	.00	.03	.01	092
45-019-0046	None	Charleston	Cape Romain Wildlife Refuge	3645423	625453	58	.00	.00	.01	.00	092
45-019-0047	N. Charleston	Charleston	US Naval Base II	3634161	598429	58	.01	.01	.01	.02	092
45-041-0001	Florence	Florence	Florence County Health Dept	3784327	610696	59	.01	.01	.01	.01	092
45-043-0002	Georgetown	Georgetown	Howard Adult Center	3693255	658389	47	.01*	.02	.01*	.02	092
45-043-0006	Georgetown	Georgetown	Georgetown CMS	3692520	658711	47	.01*	.01	.01	.01*	092
45-043-0007	Georgetown	Georgetown	Maryville Power Sub Station	3690944	658375	57	.01	.00	.00	.01	092
45-043-0009	Georgetown	Georgetown	Winyah	3693858	659490	54	.01	.01	.01	.01	092
45-045-0008	Greenville	Greenville	Greenville Health Dept.	3855853	371711	59	.01	.01	.01	.01	092
45-045-0008	Greenville	Greenville	Greenville Health Dept	3855853	371711	59	.01	.01	.02	.01	092
45-045-1002	Greenville	Greenville	Parker Fire Station	3859360	370265	55	.01	.01	.01	.01	092
45-045-2002	Greer	Greenville	First Baptist Church	3866843	387695	50	.01	.01	.02*	.01	092
45-047-0001	Greenwood	Greenwood	Greenwood County DSS	3782434	393798	50	.01	.01	.01*	.02*	092
45-049-0001	Hampton	Hampton	Hampton I	3637102	489197	56	.01	.01	.02	.01	092
45-051-0002	Horry	Myrtle Beach	Myrtle Beach EQC Office	3731011	696690	48	.00	.01	.01	.01	092
45-059-0001	Laurens	Laurens	Laurens County Office	3918131	406253	54	.01*	.00	.01	.01*	092
45-063-0005	None	Lexington	Gaston-Fallaw	3737992	488895	49	.00	.01	.02	.01	092
45-079-0006	Columbia	Richland	SCDPPPS	3762555	497833	60	.00*	.01	.01	.01	092
45-079-0006	Columbia	Richland	SCDPPPS (DUP)	3762555	497833	54	.01	.01	.01	.01	092
45-079-0007	Columbia	Richland	Parklane – State Park	3772362	503461	45	.01*	.01	.00*	.01*	092
45-079-1003	Columbia	Richland	SCDHEC Parking Lot	3764661	496637	53	.00	.01	.01	.01	092
45-083-0001	Spartanburg	Spartanburg	Spartanburg City Hall	3867430	414832	50	.00	.01*	.01	.01	092
45-085-0001	Sumter	Sumter	Sumter County Health Dept	3753530	561188	57	.00	.01	.01	.01	092
45-091-0005	Rock Hill	York	Rock Hill Water Filter Plant	3868729	499902	57	.01	.01	.02	.02	092

** Indicates that the mean does not satisfy the summary criteria.*

Nitrogen Dioxide (NO_2) Monitoring Data
[*Air Quality Standard = 100 µg/m³ - Annual]*

Site ID	City	County	Site Name	UTM-N	UTM-E	Obs	Annual Arith Mean	Method
45-019-0003	N. Charleston	Charleston	Jenkins Ave. Fire Station	3638529	595618	8144	18.8	074
45-019-0046	None	Charleston	Cape Romain Wildlife Refuge	3645423	625453	8628	7.5	074
45-045-0008	Greenville	Greenville	Greenville Health Dept	3855853	371711	7124	32.0	074
45-079-0007	Columbia	Richland	Parklane-State Park	3772362	503461	7209	26.3	074
45-079-1006	None	Richland	Congaree Swamp Nat'l Mon't	3741586	516032	5474	7.5*	000

** Indicates that the mean does not satisfy the summary criteria.*

Sulfur Dioxide (SO_2) Monitoring Data
[*Air Quality Standard = 80 µg/m³-annual, 365 µg/m³-24hr, 1,300 µg/m³-3hr]*

Site ID	City	County	Site Name	UTM-N	UTM-E	Obs	1st 3-hr	2nd 3-hr	1st 24-hr	2nd 24-hr	Annual Arith Mean
45-019-0003	N. Charleston	Charleston	Jenkins Ave Fire Dept	3638529	595618	8573	126	97	45	34	8
45-019-0046	None	Charleston	Cape Romain Wildlife	3645423	625453	8353	45	42	24	18	5
45-043-0006	Georgetown	Georgetown	Georgetown CMS	3692505	658675	8592	37	37	10	10	3
45-045-0008	Greenville	Greenville	Greenville Health Dept	3855853	371711	7900	71	65	39	39	8
45-063-0008	Irmo	Lexington	Seven Oaks Rec Center	3767611	485683	7824	252	228	58	58	10
45-073-0001	None	Oconee	Round Mt. Fire Tower	3853517	295290	8477	52	34	21	16	5
45-079-0007	Columbia	Richland	Parklane-State Park	3772362	503461	7832	81	60	29	26	8
45-079-1003	Columbia	Richland	SCDHEC Parking Lot	3764661	496637	8425	76	65	34	21	8
45-079-1006	None	Richland	Congaree Swamp	3741586	516032	5513	55	50	18	13	5*

** Indicates that the mean does not satisfy the summary criteria.*

Ozone 1-Hour Monitoring Data [*Air Quality Standard = 0.125 ppm*]

Site ID	City	County	Site Name	UTM-N	UTM-E	1st 1-hr Max	2nd 1-hr Max	3rd 1-hr Max	4th1-hr Max	>.125 Est
45-001-0001	None	Abbeville	Due West	3798885	372441	.121	.114	.106	.103	.00
45-003-0003	None	Aiken	Jackson Middle School	3689293	426589	.115	.111	.109	.108	.00
45-007-0003	None	Anderson	Powdersville	3848898	363608	.125	.125	.118	.118	2.0
45-011-0001	None	Barnwell	Barnwell CMS	3686689	456659	.113	.111	.107	.105	.00
45-015-0002	None	Berkeley	Bushy Park Pump	3650164	599329	.117	.106	.101	.100	.00
45-019-0042	None	Charleston	U.S. Army Reserve	3641584	596722	.107	.096	.095	.095	.00
45-019-0046	None	Charleston	Cape Romain Wild.	3645423	625453	.092	.092	.084	.082	.00
45-021-0002	None	Cherokee	Cowpens Nat'l	3887596	425589	.123	.120	.119	.111	.00
45-023-0002	None	Chester	Chester Airport	3849891	481347	.123	.122	.115	.113	.01
45-029-0002	None	Colleton	Ashton	3651948	503249	.099	.099	.099	.094	.01
45-031-0003	None	Darlington	Pee Dee Exp. Sta.	3794195	615260	.115	.108	.100	.098	.01
45-037-0001	None	Edgefield	Trenton	3733439	420912	.122	.119	.112	.111	.01
45-073-0001	None	Oconee	Round Mt. Fire Tower	3853517	295290	.108	.106	.105	.103	.01
45-077-0002	Clemson	Pickens	Clemson CMS	3835956	331490	.112	.109	.107	.103	.01
45-079-0007	Columbia	Richland	Parklane-State Park	3772362	503461	.122	.116	.111	.107	.00
45-079-1002	None	Richland	Sandhill #2	3776454	511417	.125	.113	.113	.108	1.0
45-079-1006	None	Richland	Congaree Swamp	3741586	516032	.110	.106	.106	.104	.00
45-083-0009	None	Spartanburg	N. Spartanburg	3872106	401800	.120	.112	.107	.103	.00
45-087-0001	None	Union	Delta	3821894	448566	.111	.105	.101	.099	.00
45-089-0001	None	Williamsburg	Indiantown	3732245	632926	.094	.091	.089	.087	.00
45-091-0006	None	York	York CMS	3865736	479125	.119	.114	.107	.104	.00

Ozone 8-Hour Monitoring Data *Ozone Season: April 01 - October 31*

Site ID	City	County	Site Name	UTM-N	UTM-E	*Num *Meas	Num Req	1st	2nd	3rd	4th	Vals> Meas. 08	Method
45-001-0001	None	Abbeville	Due West	3798885	372441	206	214	.102	.098	.096	.091	13	047
45-003-0003	None	Aiken	Jackson Middle School	3689293	426589	201	214	.101	.101	.099	.098	24	047
45-007-0003	None	Anderson	Powdersville	3848898	363608	209	214	.120	.111	.104	.102	22	047
45-011-0001	None	Barnwell	Barnwell CMS	3686689	456659	197	214	.101	.100	.095	.095	13	047
45-015-0002	None	Berkeley	Bushy Park Pump	3650164	599329	190	214	.089	.089	.086	.083	3	047
45-019-0042	None	Charleston	U.S. Army Reserve	3641584	596722	201	214	.086	.082	.081	.081	1	047
45-019-0046	None	Charleston	Cape Romain Wild.	3645423	625453	185	214	.080	.079	.079	.076	0	047
45-021-0002	None	Cherokee	Cowpens Nat'l	3887596	425589	213	214	.105	.100	.097	.096	15	047
45-023-0002	None	Chester	Chester Airport	3849891	481347	198	214	.108	.096	.095	.093	17	047
45-029-0002	None	Colleton	Ashton	3651948	503249	210	214	.089	.088	.088	.087	5	047
45-031-0003	None	Darlington	Pee Dee Exp. Sta.	3794195	615260	207	214	.102	.092	.090	.089	8	047
45-037-0001	None	Edgefield	Trenton	3733439	420912	208	214	.114	.104	.097	.091	14	047
45-073-0001	None	Oconee	Round Mt. Fire Tower	3853517	295290	208	214	.100	.100	.093	.093	9	047
45-077-0002	Clemson	Pickens	Clemson CMS	3835956	331490	209	214	.101	.100	.098	.096	6	047
45-079-0007	Columbia	Richland	Parklane-State Park	3772362	503461	209	214	.105	.102	.098	.098	11	047
45-079-1002	None	Richland	Sandhill #2	3776454	511417	211	214	.112	.105	.102	.096	14	047
45-079-1006	None	Richland	Congaree Swamp	3741586	516032	152	214	.082	.082	.082	.081	0	047
45-083-0009	None	Spartanburg	N. Spartanburg	3872106	401800	182	214	.103	.100	.099	.097	13	047
45-087-0001	None	Union	Delta	3821894	448566	199	214	.095	.092	.088	.087	8	047
45-089-0001	None	Williamsburg	Indiantown	3732245	632926	153	214	.083	.080	.080	.079	0	047
45-091-0006	None	York	York CMS	3865736	479125	194	214	.098	.093	.091	.087	6	047

** Indicates that the mean does not satisfy the summary criteria.*

Particulate Matter (PM_{10}) Monitoring Data
[*Air Quality Standard = 50 µg/m³-annual, 150 µg/m³-24hr*]

Site ID	City	County	Site Name	UTM-N	UTM-E	Obs	1st 24-hr	2nd 24-hr	Annual Arith Mean
45-003-0003	None	Aiken	Jackson Middle School	3689393	426589	54	61	50	22*
45-011-0001	None	Barnwell	Barnwell CMS	3686689	456659	56	59	44	19
45-019-0003	N. Charleston	Charleston	Jenkins Avenue Fire Station	3638529	595618	324	54	53	22
45-019-0046	None	Charleston	Cape Romain Wildlife	3645423	625453	59	50	49	19
45-019-0047	N. Charleston	Charleston	US Naval Base II	3634161	598429	54	60	57	25
45-039-8001	None	Fairfield	Ridgeway #1	3791641	508054	59	54	45	22
45-039-8002	None	Fairfield	Ridgeway #2	3792763	511021	59	60	53	27
45-043-0002	Georgetown	Georgetown	Howard Adult Center	3693258	658354	52	63	56	28*
45-043-0006	Georgetown	Georgetown	Georgetown CMS	3692505	658675	308	75	75	34
45-043-0009	Georgetown	Georgetown	Winyah	3693850	659456	51	66	52	27*
45-045-1002	Greenville	Greenville	Parker Fire Station	3859360	370265	230	58	58	28*
45-063-0009	Cayce	Lexington	Cayce CMS	3758994	495118	315	218	188	51
45-079-0007	Columbia	Richland	Parklane – State Park	3772362	503461	54	64	56	26*
45-079-0007	Columbia	Richland	Parklane – State Park (Dup.)	3772362	503461	44	64	54	25*
45-079-0014	Columbia	Richland	Enright (Rex) Athletic Center	3760080	498168	55	61	52	27
45-079-0018	Columbia	Richland	Olympia	3759977	496267	303	168	145	46
45-079-1003	Columbia	Richland	SCDHEC Parking Lot	3764661	496637	51	59	49	24*
45-083-0001	Spartanburg	Spartanburg	Spartanburg City Hall	3867430	414832	59	55	48	24
45-091-0005	Rock Hill	York	Rock Hill Water Filter Plant	3868729	499902	51	83	57	29*

** Indicates that the mean does not satisfy the summary criteria.*

Total Suspended Particulate (TSP) Monitoring Data
[*Air Quality Standard = 75 µg/m³ - annual]*

Site ID	City	County	Site Name	UTM-N	UTM-E	Obs	Annual Arith Mean
45-003-1001	None	Aiken	Beech Island Fire Station	3699184	417032	50	41*
45-013-0001	Beaufort	Beaufort	Beaufort County Health Dept	3588461	530346	42	24*
45-019-0003	N. Charleston	Charleston	Jenkins Ave. Fire Station	3638529	595618	56	36
45-019-0046	None	Charleston	Cape Romain Wildlife Refuge	3645423	625553	57	21
45-019-0047	N. Charleston	Charleston	U.S. Naval Base II	3634161	598429	58	31
45-041-0001	Florence	Florence	Florence County Health Dept	3784327	610696	59	36
45-043-0002	Georgetown	Georgetown	Howard Adult Center	3693255	658389	47	47*
45-043-0006	Georgetown	Georgetown	Georgetown CMS	3692520	658711	47	73*
45-043-0007	Georgetown	Georgetown	Maryville Power Sub Station	3690944	658375	57	27
45-043-0009	Georgetown	Georgetown	Winyah	3693858	659490	54	43
45-045-0008	Greenville	Greenville	Greenville Health Dept	3855853	371711	59	32
45-045-0008	Greenville	Greenville	Greenville Health Dept (Dup.)	3855853	371711	59	32
45-045-1002	Greenville	Greenville	Parker Fire Station	3859360	370265	55	41
45-045-2002	Greer	Greer	First Baptist Church Annex	3866843	387695	50	27*
45-047-0001	Greenwood	Greenwood	Greenwood County DSS	3782434	393798	50	28*
45-051-0002	Myrtle Beach	Horry	Myrtle Beach EQC Office	3731011	696690	48	37*
45-059-0001	Laurens	Laurens	Laurens County Office Complex	3818131	406253	54	25*
45-063-0005	None	Lexington	Saltech (Gaston-Fallaw)	3737992	488895	49	28*
45-063-0008	Irmo	Lexington	Seven Oaks Recreation Center	3767611	485683	55	29*
45-063-1002	Cayce	Lexington	Cayce Fire Station	3758509	493949	58	36
45-079-0006	Columbia	Richland	SCPPPS	3762555	497833	60	33
45-079-0006	Columbia	Richland	SCPPPS (Dup)	3762555	497833	54	34*
45-079-0014	Columbia	Richland	Enright (Rex) Athletic Center	3760080	498168	45	45*
45-079-1003	Columbia	Richland	SCDHEC Parking Lot	3764661	496637	53	29
45-079-1006	None	Richland	Congaree Swamp Nat'l Mon't	3741586	516032	46	19*
45-083-0001	Spartanburg	Spartanburg	Spartanburg City Hall	3867430	414832	50	30*

Acknowledgements and Information Resources

Special thanks to the following individuals for their contributions to this publication:

Todd Barrett
Bob Betterton
Dennis Camit
Jerry Chalmers
Kevin Clark
Phyllis Copeland
Jeff DeLong
Dennis Ellenwood
Mark Fairleigh
Jake Frick
Mike Garren
John Hursey
Michael Juras
Clay Lawson
Dakin MacPhail
Scott Reynolds
Carl Richardson
Brian Rivers
Pete Saussy
Renee Shealy
Robin Stephens

Editors:
Elizabeth Boland
Donna Bowman

If you are interested in a classroom or civic organization presentation on an environmental issue, please contact the individual bureaus listed and ask for the outreach and education sections.

Points of Contact at DHEC:

Bureau of Air Quality
(803) 898-4123

Bureau of Environmental Services
(803) 898-3978

Bureau of Land and Waste Management
(803) 896-4000

Bureau of Water
(803) 898-4300

Ocean and Coastal Resource Management
(803) 898-4404

Agency Policy and Regulations
(803) 898-3300

Center for Waste Minimization
(803) 898-3971

Coastal Permit Liaison
(843) 744-5838 ext. 133

Educational Resource Center
(803) 898-3804

Enforcement Liaison
(803) 898-3967

Federal Facilities
(803) 898-3973

Freedom of Information
(803) 898-3882

Health Hazard Evaluation
(803) 898-3997
1(800) 849-7241

Permitting Liaison
(803) 898-3957

Risk Communication
(803) 898-3997
1 (800) 819-9001